



MOREHOUSE

SCHOOL OF MEDICINE



TRANSLATIONAL TECHNOLOGIES

MOREHOUSE SCHOOL OF MEDICINE

Overview

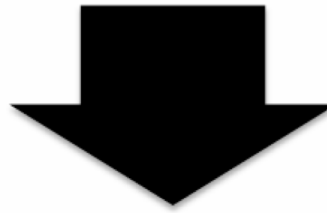
- Mission and Vision
- Background
- Comparative Advantage and Value
- Past Performance
- Contract research efforts
- Morehouse SoM Team – Combined Capabilities

Mission

We exist to: i) improve the health and well-being of individuals and communities; ii) increase the diversity of the health professional and scientific workforce; and iii) address primary health care through programs in education, research, and service

Vision

Leading the creation and advancement of health equity.



Vision Imperatives

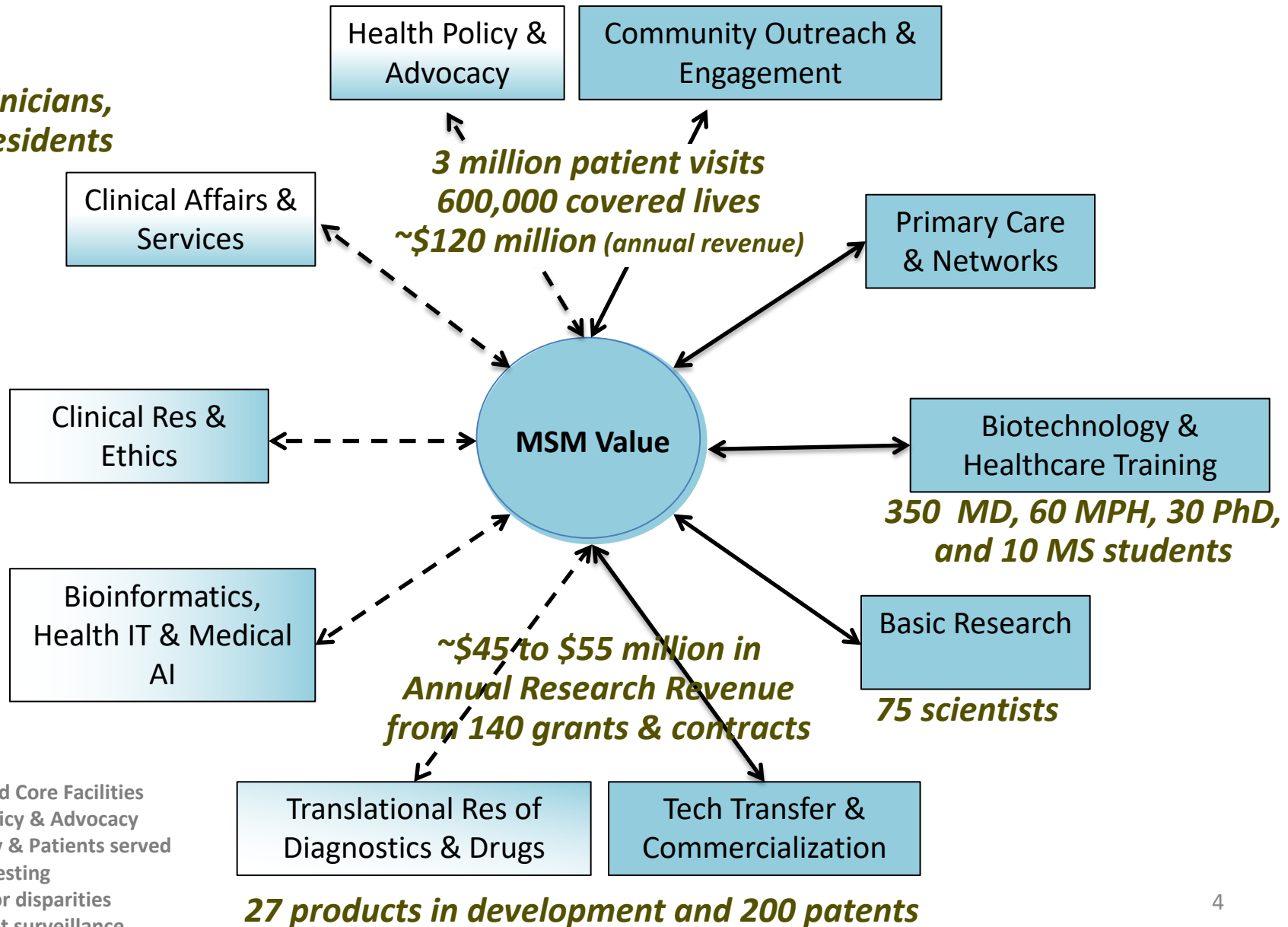
Translating Discovery into
Health Equity

Building Bridges Between
Healthcare and Health

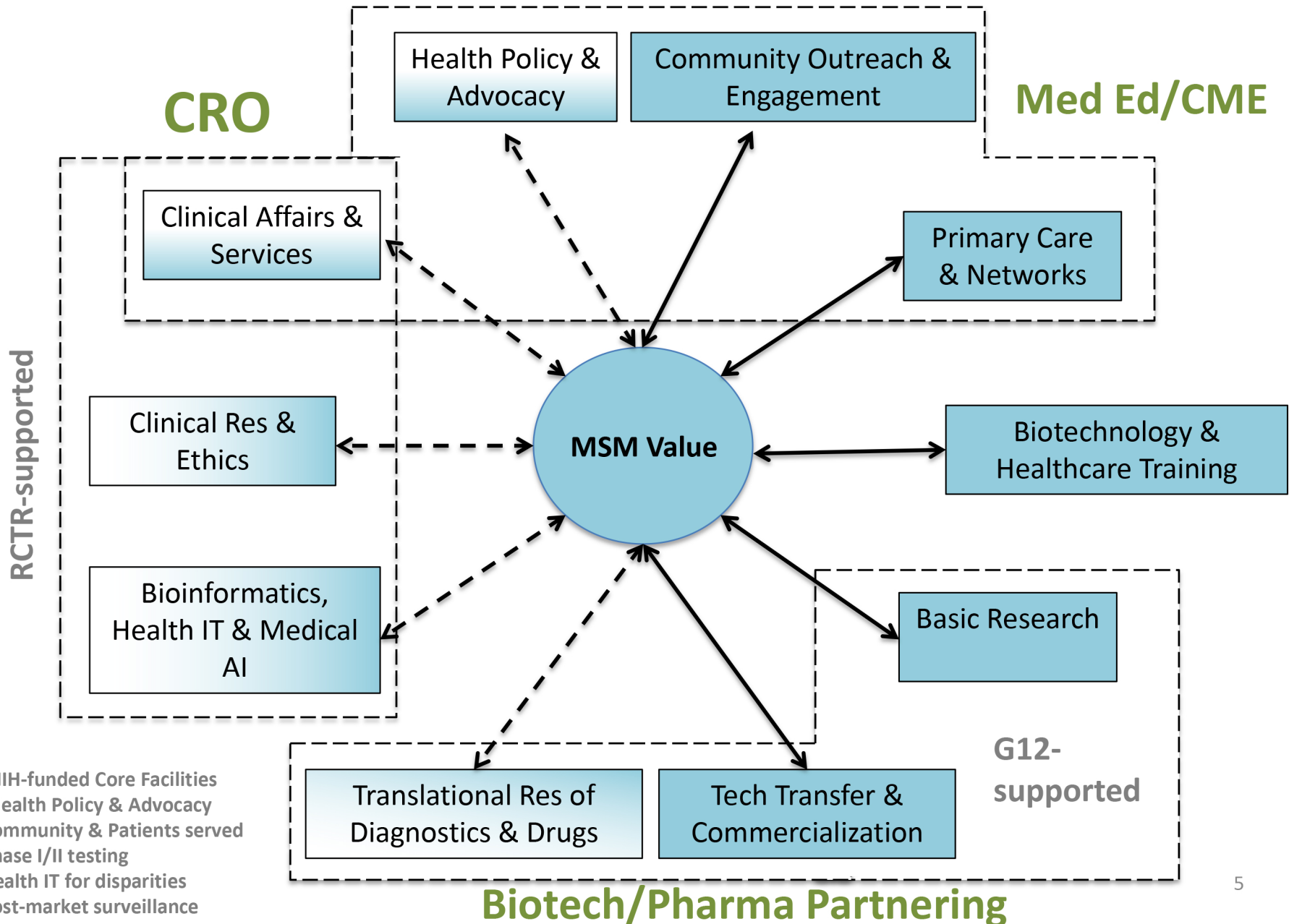
Preparing Future Health
Learners and Leaders

Morehouse SoM Programs at a Glance

**80 clinicians,
140 residents**



Leveraging Capabilities, Technologies, and Services



Contract Research & Service Capabilities

Information Technology (Health IT) Services

ANALYSIS, TESTING, AND
EVALUATION

HEALTH SCIENCES
TECHNICAL SUPPORT

*DATA ANALYTICS

*SOFTWARE & SERVICES
FOR BIOMEDICAL
RESEARCH AND
HEALTHCARE

GENERAL IT & TELECOM

Medical, Life Sciences, & Environmental Services

ANALYTICAL CHEMISTRY
& TOXICOLOGY

PROTEOMICS &
BIOENGINEERING

*GENE PROFILING &
GENOMICS

*BIOINFORMATICS

Healthcare & Social Services

*HEALTH, MEDICAL,
SOCIAL SCIENCE, AND
DEMOGRAPHIC R&D

LEARNING DISABILITIES
AND SOCIOLOGY R&D

*HEALTH POLICY
DEVELOPMENT &
ADVOCACY

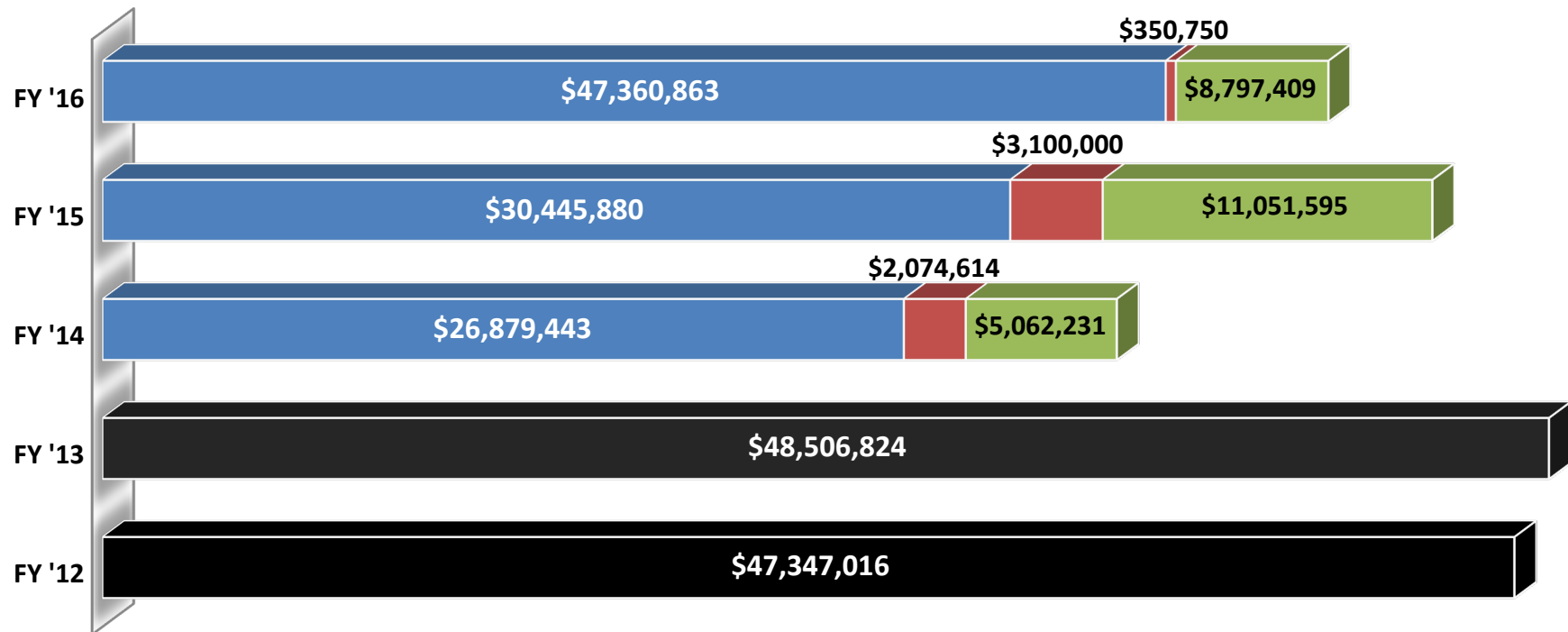
*PUBLIC HEALTH
INFORMATICS



Past Performance – Research & Training Funding

Figure from April 2016

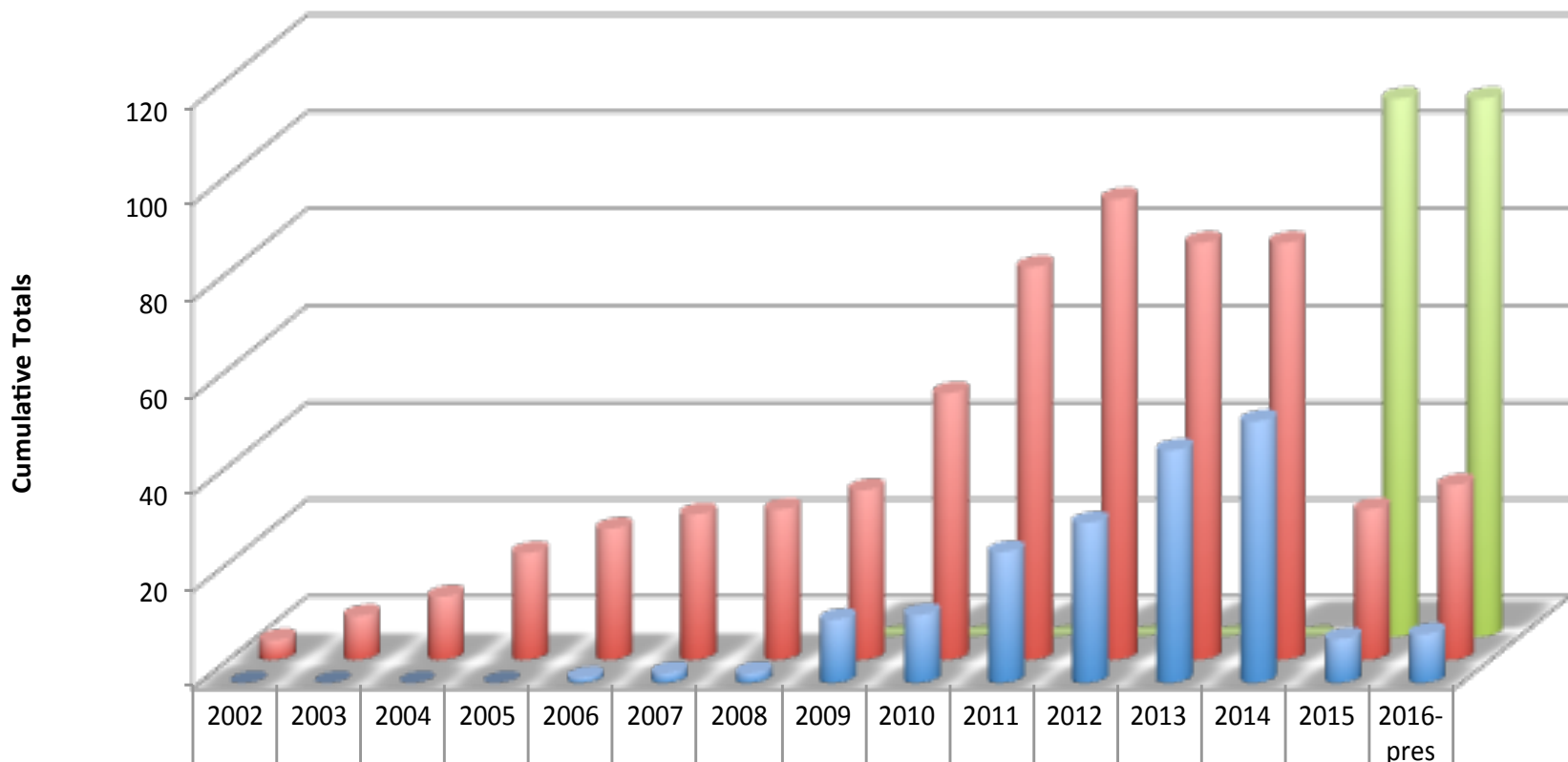
■ Continuations ■ Renewals ■ New



- FY16: \$56,509,022 with a breakdown of \$47,360,863 from continuing grants, \$8,797,409 as new awards and competitive renewals representing \$350,750.
- FY15: \$44,597,475 with a breakdown of \$30,445,880 from continuation grants, \$11,051,595 as new awards and competitive renewals represent \$3,100,000 of the total.



Past Performance – Intellectual Property Created



Remaining Issued Patents:	0	0	0	0	1	2	2	13	14	27	33	48	54	9	10
Remaining Pending Patent:	4	9	13	22	27	30	31	35	55	81	95	86	86	31	36
Licensed Patent Applications:								0	0	0	0	0	0	111	111
Issued & Pending Patents								48	69	108	128	134	150	151	157



***Past Performance** – Contracts with Large/Medium Businesses*

- ***Health IT & Analytics Subcontract Services***
 - **Awarded** DoT-IRS TIPSS4 exclusive HBCU/MI partner with Northrop Grumman (deal valued at \$2m/yr for 10 yrs)
 - **Awarded** Navy Omnibus 3 exclusive HBCU/MI partner with General Dynamics (deal valued at \$1m/yr for 5 yrs)
 - **Awarded** HHS CIO-SP3 LB exclusive HBCU/MI partner with SRA Intl
 - **Awarded** HHS CIO-SP3 SB exclusive HBCU/MI partner with PSI Intl
 - **Not Awarded** DHS Eagle III exclusive HBCU/MI partner with PSI Intl
 - **Not Awarded** CDC and NCI nutritional survey with Reveal Analytics
- ***Life Sciences Subcontract Services***
 - **Awarded** nine SBIR/STTR subcontract awards
- ***Clinical & Social Subcontract Services***
 - **Awarded** NIH OD OT2OD025284-01 “All of Us”
 - **Awarded** NIH Fogarty D43TW009340 “UJMT Global Consortium”

Past Performance – contracts with Small Businesses Commercialization & Industry Engagement

- 12 Morehouse SoM technologies have been licensed to small to mid-size businesses that have raised over \$80 million in private equity.
- Four of these companies were awarded \$2.2 million in SBIR/STTR grant awards. Morehouse SoM-associated companies lead the state of Georgia in STTR funding in 2013 and 2014.
- \$850,000 SBIR/STTR subcontracts awarded to Morehouse SoM

Detailed Summary of Commercialization Efforts

Nine Faculty startups and Three Partnerships (focus & track record)

4DGENOME, INC.



NutriGlobal S, Inc.

R & Z INC.

- 4DGenome 13' (Song): chromosome-specific haplotyping software and single cell isolation equipment (**\$225,000 SBIR award**)
- AccuHealth Technologies 12' (Ofili): app for chronic disease care & clinical trials
- Akumba Diagnostics 13' (Stiles): saliva-based tests for parasitic infections
- BrainGEN 13' (Ford): neuregulin/chimeras to treat CNS injuries and stroke IVD
- **Complexa 11' (Chen)**: synthetic nitro fatty acid (CXA-10) to treat acute renal injury (completed Phase I trial after raising **\$21 million** in funding). Enrolling subjects for Phase II clinical study.
- **Heat Biologics 08' (Pattillo)**: clinical-stage company developing cell-based immunotherapy for the treatment of a wide range of cancers. Raised **\$48 million** through IPO.
- Haplomics 11' (Lillard): rFVIII and therapies for African American hemophilia A patients (**\$575,000 from two STTR and one SBIR awards**).
- JYANT Technologies 10' (Lillard, R Gonzalez, R Singh, S Singh): chemokine/chemokine receptor/obesity receptor antagonists and nanotechnologies for cancer, inflammatory diseases, and their diagnosis (**\$1.2 million from one SBIR and three STTR awards**).
- Orunmil Pharma 15' (Bond): mortalin/HSP65 peptide inhibitor to treat cancers, inflammatory disease, and viral infections.
- Nutriglobal 12' (Hibbert): medicinal foods for sickle cell anemia and cachexia.
- R & Z, Inc. 14' (Xiong/Simon) & **Shenzhen Anshide Asset Co Ltd 16'**: peptide and small molecule ASIC1a inhibitors for CNS injuries associated with acidosis.

SBIR/STTR Awards to Date

AWARD	PROJECT NAME	PI/FACULTY NAME(S)	TOTAL AWARD AMOUNT	PROJECTED AWARD TO MSM
4DGenome R43HG007621-01	Cost-effective and high-throughput chromosomal haplotyping	Song	\$218,556	\$65,567
Exscien Corporation R41NS086267-01A1	Enhancing mtDNA Repair During Stroke Reperfusion to Reduce Brain Damage	Wilson / Simon	\$149,171	\$59,668
Haplomics R41MD008156-01A1	Evaluation of the Antigenicity of Restricted FVIII Haplotypes	Lillard	\$184,545	\$73,818
Haplomics R41MD008809-01	Novel Pharmacogenomic Approach for Identifying T Cell Epitopes in Replacement FVIII Therapy	Lillard	\$203,848	\$81,539
Haplomics R43MD008660-01	H3 FVIII for Hemophilia A Patients at High Risk for Anti-Drug Antibodies	Lillard	\$243,349	\$97,340
JYANT Technologies R43DK096857-01A1	Treatment of Colitis and Ileitis using a Novel CXCR3 Biologic Antagonist	Lillard / R Singh	\$317,247	\$126,898
JYANT Technologies R41CA183399-01A1	Novel adjuvant therapy for triple negative breast cancer	Gonzalez / Lillard	\$225,000	\$90,000
JYANT Technologies R41MD010320-01	Anti-CXCL13 mAb to mitigate prostate cancer health disparities	S Singh / Lillard	\$315,320	\$126,128
JYANT Technologies R41CA214080-01	Anti-CCL25 mAb to treat castration resistant prostate cancer	S Singh / Lillard	\$315,320	\$126,128
		TOTAL	\$2,172,356	\$847,086



Contract Research & Service Capabilities

Strategically Partnering to Add Depth and Breadth

Information Technology (Health IT) Services



Medical, Life Sciences, & Environmental Services



Healthcare & Social Services



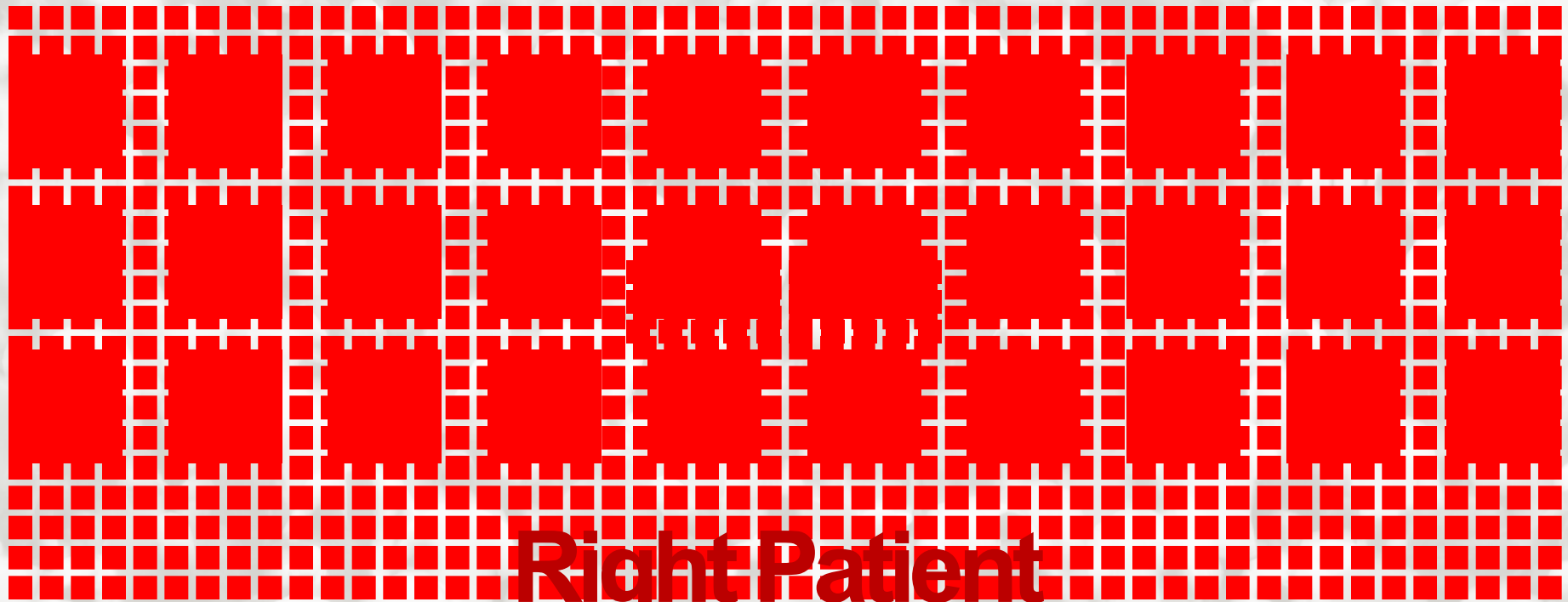
Working Example:
Precision Medicine Initiative in Oncology





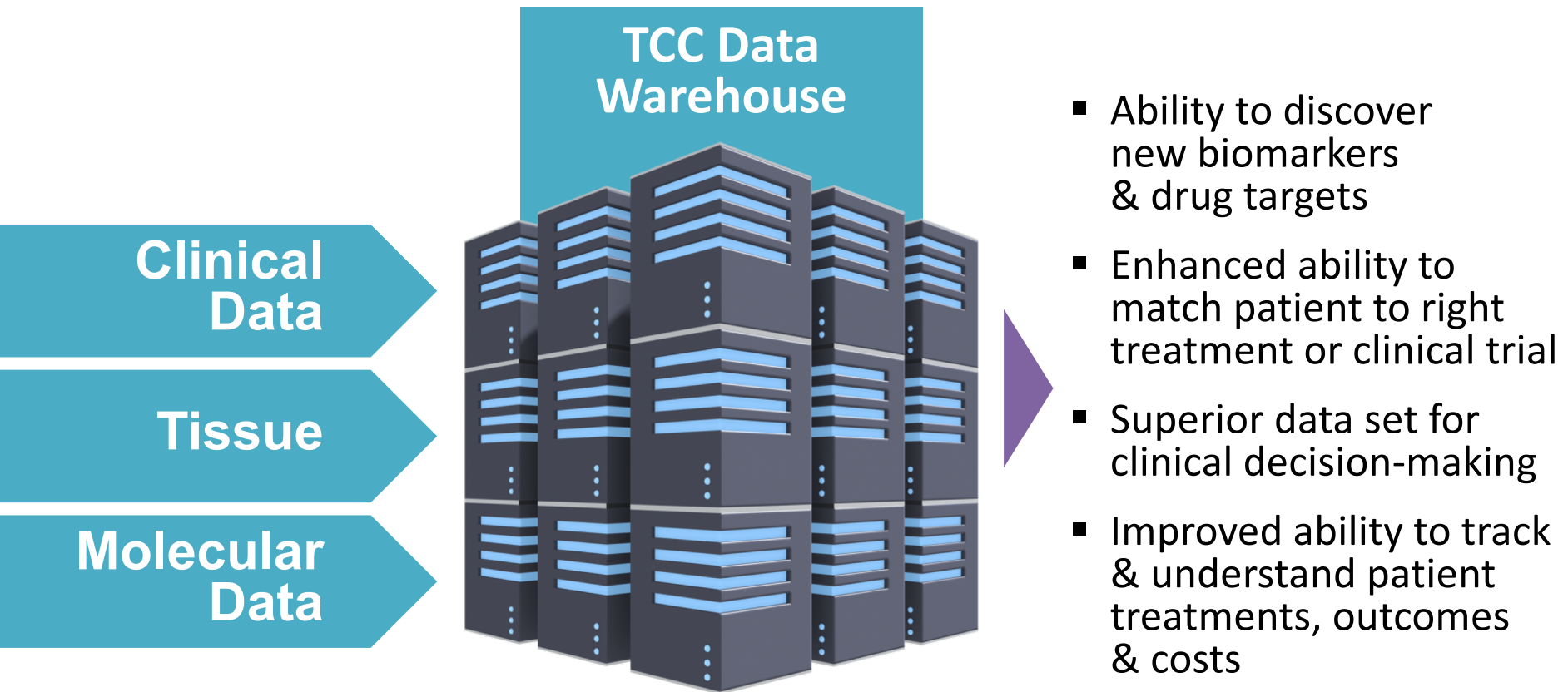
IMPACT

*Right Patient
Right Treatment
Right Time*



Right Patient
Right Treatment
Right Time
Right Place
Right Cost
Right Information
Right Care
Right Outcome
Right System
Right Culture
Right Leadership
Right Governance
Right Accountability
Right Transparency
Right Collaboration
Right Innovation
Right Quality
Right Safety
Right Equity
Right Access
Right Engagement
Right Partnership
Right Community
Right Environment
Right Policy
Right Regulation
Right Standards
Right Metrics
Right Tools
Right Data
Right Technology
Right Infrastructure
Right Resources
Right Talent
Right Culture
Right Leadership
Right Governance
Right Accountability
Right Transparency
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Right Innovation
Right Quality
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Right Access
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Right Environment
Right Policy
Right Regulation
Right Standards
Right Metrics
Right Tools
Right Data
Right Technology
Right Infrastructure
Right Resources
Right Talent

Power of Integrating Big Data



Thanks

For more information contact:

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TRANSLATIONAL TECHNOLOGIES
MOREHOUSE SCHOOL OF MEDICINE



- Pioneering breakthroughs in Biomedical Research for nearly 70 years
- Over 400 active grants and contracts (700+ active and closed annually)
- Submits **30 contract applications per month**
- Broad expertise in **toxicology, pharmacology, gene therapy**, on **clinical trials**
- Development of novel models of infectious disease (**emerging pathogens**), **Alzheimer's** disease, and cancer
- Increasing focus on Pharmaceutical R&D, dosing paradigms, endpoints
- Facilities, staff, processes needed to support all study aspects
- Successfully **administer** commercial and **federal** grants and **contracts**





**LOGISTICS
SERVICES**



**ENGINEERING
SERVICES**



**INFORMATION
TECHNOLOGY**



**BUSINESS
SERVICES**



**MISSION
SUPPORT**

- Founded in 1987
- Headquarters in Alexandria, VA
- Employs a mix of skill sets to include-engineers, **scientists, programmers**, technicians, **logisticians** and administrative personnel
- Working on Three Continents
- **High-end Engineering, Software Services & Logistics Support**
- SENTEL's is a recognized provider of innovative products, imaginative solutions and quality services, with five core pillars of competency: Engineering Services, Mission Support, **Information Technology**, Logistics and **Business Support** Services
- ISO 9001:2008 Certification and CMMI Level II Certification





LakePharma
The Biologics Company

Antibody Discovery

Multiple Technology Platforms, Antigen Creation, Hybridoma Development, Hybridoma Cloning & Screening, High-throughput Hybridoma Sequencing, Phage Library Construction & Screening, and Single B-Cell Cloning

Molecular Biology

Plasmid Design, Gene Synthesis, Cloning, DNA Sequence Analysis, Transfection-Grade Plasmid Production, and Virus Generation

Cell Line Development & Culture Optimization

Stable Cell Line Development, Research Cell Banking, Media Adaptation, Cell Culture Optimization, and Custom Media Development

Protein Engineering & Production

Antibody Humanization, Affinity Maturation, de novo Antibody Sequencing, Proprietary High-expression Vectors, Expression Using Microbial, Mammalian, Insect & Yeast Systems, Production of Proteins, Antibodies, Antibody-like Molecules & Fusion Proteins, and Purification Process Development & Scale-up

Bioanalytics

Affinity Measurement (Octet, Biacore) and Biophysical Characterization including Intact Mass (LC-MS), Sequence Confirmation, Post Translational Modification, Protein Aggregation (SE-HPLC), Thermostability (DSC), Particle Size (DLS), Charge Variation (IEX), pI, RP-HPLC, CE-SDS, and Formulation & Stability Analysis

Assays

Biochemical and Cell-based Assay Development & Screening, Radioligand Binding, ELISAs, Meso Scale Discovery Assays, High Content Screening, Proliferation & Viability Assays, Flow Cytometry, and qPCR



Translating protein drug or biomarker into final product





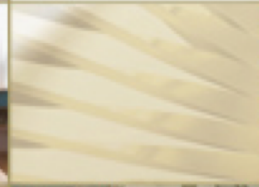
Million Veteran Program: A Partnership with Veterans



DISCOVERY  INNOVATION  ADVANCEMENT

MVP IS NOW ENROLLING

The Million Veteran Program (MVP) is a national, voluntary research program designed to better understand how genes affect health and illness.



- Founded in 2010, biorepository and genomics company based in Atlanta
- State of the art automation and robotics with suite of genomics platforms
- Operates in 14,000 sq. ft. purpose built laboratories and offices
- More than 120,000 samples processed in 2014
- Performs to high regulatory standards
- **CLIA/CAP compliant Biorepository services:** biobanking to regulatory standards, **DNA/RNA extraction**, QC & quantitation services, **genomics** services, assay development services for customers, informatics, molecular cytogenomics testing
- Awarded **Veteran's Affairs – MVP Contract**









Background

- Established: May 3, 2004
- Certifications: SBA (A) / 8a
- SWaM
- Dunns/Cage: 825333961
- 53FF5
- Headquarters: 7001
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Springfield, VA 22150
- www.supremesolutionsinc.com

Services

-  Program Management
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-  Research & Development



Neo-Biz Solutions, LLC

- Over 17 years of experience working in research administration.
- Expert knowledge of application guide lines for SBIR/STTR submissions.
- Submitted thousands of applications to numerous federal agencies.
- **SBIR/STTR Pre and Post Award Management**

